

On the Vanishing Viscosity Limit for 2D and Axisymmetric 3D Incompressible Flows

E. Wiedemann

Ulm University, Germany
EMIL.WIEDEMANN@UNI-ULM.DE

Abstract

Consider the 2D incompressible Navier-Stokes equations with initial vorticity in L^p ($1 < p \leq \infty$), and let the viscosity tend to zero. It is well-known by standard compactness arguments that the corresponding solutions will converge (up to a subsequence) to a solution of the Euler equations, but the usual strategy only gives weak convergence of the vorticities. We show how to upgrade to strong convergence of vorticities, and extend this result to strong convergence of relative vorticities in 3D axisymmetric flows. Joint work with Helena Nussenzweig Lopes and Christian Seis, and with Patrick Brkic.